NOTE

CHANGES INDUCED IN THE O ANTIGENS OF SALMONELLA[1]

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It is possible to induce profound changes in the flagellar antigens of *Salmonella* through growth in media containing H antisera. These changes were recently summarized by Edwards and Moran (Proc. Soc. Exptl. Biol. Med., **61**, 242). Hitherto, the only changes reported in the O antigens were those associated with variation between smooth and rough forms and those occurring in natural form variation. In this laboratory attempts to transform O antigens by the method of Boivin *et al.* (Experientia, **2**, 139) and by growth in various combinations of S and R antisera and S vaccines have been unsuccessful. However, by a modification of the method of Gard (Z. Hyg., **120**, 615) in which absorbed O antiserums were used in high concentration, it was possible to bring about certain changes.

When *S. anatum* (III,X,XXVI: e,h-l,6) was cultivated in semisolid medium containing III,X,XXVI serum that had been absorbed with a type having O antigens III,XV, the organisms gradually spread through the medium. From the spreading growth was isolated a form that was indistinguishable from *S. newington* (III,XV: e,h-l,6) by agglutination and absorption tests. Absorption of the III,X,XXVI serum by S. *newington*, *S. cambridge* (III,XV: e,h-l,w), or *S. new-brunswick* (III,XV: l,v-l,7) gave the same results. The induced III,XV: e,h-l,6 form was then reverted to a typical *S. anatum* strain by cultivation in absorbed III,XV serum. Similarly, *S. meleagridis* (III,X,XXVI: e,h-l,w) was changed to a form indistinguishable from *S. cambridge* (III,XV: e,h-l,w).

Although filtrates similar to those employed by Boivin were not used in the experiments, it must be remembered that the serums were absorbed with very large doses of bacteria and probably contained dissolved antigens as well as metabolic products. Thus the principle that induced the changes may be the same as that involved in Boivin's work with *Escherichia coli*. Further, attention should be called to the fact that the changes described are only transformations between subgroups of the same O group. Whether similar experiments will permit transformation between distinct O groups or whether they will lead only to rough variation remains to be determined.

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